

Application No. 10/782,790

Docket No.: A8319.0035/P035

**REMARKS**

New claims 27 and 28 have been added. Support for the new claims appears in the original disclosure, including page 23, lines 1-12. The application as amended contains claims 9-12, 14-17 and 19-28 – six independent claims and a total of eighteen claims. **Please charge the applicable fee (\$220.00) for the additional independent claim to Deposit Account No. 04-1073.** A Petition for Extension of Time is being filed concurrently herewith. **Please charge any deficiencies in the fees associated with these papers to Deposit Account No. 04-1073.** Applicants reserve the right to pursue the original and other claims in this and in other applications.

Claims 9, 10, 12, 14, 15, 17 and 19-22 are rejected under 35 U.S.C. § 102 as being anticipated by Thieme, and under 35 U.S.C. § 103 as being unpatentable over Thieme, and as being unpatentable over Thieme in view of Wong and Dunand. Reconsideration is respectfully requested.

Thieme refers to a wire that has (1) a Mg-B region, (2) a high-resistivity barrier layer comprised of tantalum, niobium, nickel, nickel alloy, iron, tungsten or molybdenum, and (3) a metal laminate comprised of copper, copper alloy, stainless steel, aluminum, aluminum alloy, or nickel alloy. The barrier layer is located between the Mg-B region and the metal laminate. According to the Office Action, the Mg-B region, the barrier layer, and the laminate meet the superconductor material, the metal base member, and the cladding layer of independent claim 9, respectively.

An important aspect of the invention of claim 9 is that an intermediate layer is located between the base member and the cladding layer. The intermediate layer operates as a junction auxiliary material. It is electrically and mechanically unified and integrated with the metal base member and the cladding layer in a unitary block. Thieme does not disclose or suggest the intermediate layer of claim 9.

According to Thieme, ¶ 0095, high quality superconducting  $MgB_2$  was found to form at temperatures in the range of 550 to 800° C, and heat treatments for other products, including a

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multi-layer product in ¶ 0101, are also disclosed. Applicants recognize that a *prima facie* case may be established where claimed and prior art products are produced by “identical or substantially identical processes.” M.P.E.P. § 2112.01(I). Thieme, however, does not disclose or suggest any particular heat treatment for the three-component wire which is the starting point for the rejection, that is, the one that has the (1) Mg-B region, (2) high-resistivity barrier layer comprised of tantalum, niobium, nickel, nickel alloy, iron, tungsten or molybdenum, and (3) metal laminate comprised of copper, copper alloy, stainless steel, aluminum, aluminum alloy, or nickel alloy. Thieme does not describe any heat treatment for such wire, much less any specific conditions therefor. Thus, the contention that Thieme teaches “a heat treatment that is substantially similar to the heat treatment of the claimed invention” is not understood.

Moreover, Thieme fails to disclose or suggest any desirability, much less necessity, for the intermediate layer of the present invention, which is electrically and mechanically unified and integrated with the base member and the cladding layer in a unitary block, and contains a metal selected from a group including copper, silver, gold, palladium, aluminum, silicon, indium, tin, zinc, iron, lead, nickel, manganese and boron. Therefore, not only is the intermediate layer of claim 9 not inherent in Thieme, but also it would not have been obvious. There is no reason suggested in the prior art for providing the Thieme three-component wire with the intermediate layer of claim 9.

Wong and Dunand do not overcome the deficiencies of Thieme. Indeed, Wong and Dunand seem to have little to nothing to do with the present invention. Wong relates to an oxide superconducting bulk, which is different from the  $MgB_2$  compound sheath of the present invention. Dunand relates only to a single sheath, which fails to have any of the advantages or effects of the present invention. Since the Wong/Dunand additive agent is not provided between each of a pair of coaxially provided material, it is not possible to use such material to obtain the advantages of the present invention.

The remaining claims (claims 10-12, 14-17 and 19-28) depend from claim 9 or recite limitations similar to those discussed above in connection with claim 9. Claims 10-12, 14-17 and

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19-28 should be allowable along with claim 9 and for other reasons. Accordingly, allowance of the application is solicited.

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